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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-2919A
Plant ID No.:	103-00044
Applicant:	EQT Gathering, LLC (EQT)
Facility Name:	Mercury Station
Location:	Mobley, Wetzel County
NAICS Code:	211111 (Natural Gas Extraction)
Application Type:	Modification
Received Date:	August 15, 2013
Engineer Assigned:	Jerry Williams, P.E.
Fee Amount:	$2,000.00
Date Received:	August 15, 2013
Complete Date:	October 16, 2013
Due Date:	January 14, 2014
Applicant Ad Date:	September 25, 2013
Newspaper:	*The Wetzel Chronicle*
UTM's:	Easting: 538.80 km Northing: 4,378.78 km Zone: 17
Description:	Installation and operation of gas well production support equipment. This permit will supersede and replace R13-2919 issued on August 22, 2012 and G35-A096 issued on August 1, 2013.

DESCRIPTION OF PROCESS

The following process description was taken from Permit Application R13-2919A:

Normally, liquids in the natural gas pipeline flow to the nearby MarkWest facility. This project involves the construction and operation of three (3) storage tanks (two (2) produced fluids tanks and one (1) natural gas liquids tank) controlled by an enclosed flare and associated equipment to collect and manage pipeline liquids produced within the Mercury gathering system upstream of the Mercury dehydration station. The pipeline liquids will be transported for processing to the MarkWest natural gas processing plant via pipeline. The flare is designed to operate during maintenance activities on the pipeline.

The Mercury Station is a natural gas gathering facility. The Mercury Liquids Handling project does not affect the design or operation of the Mercury Dehydration facility but will remove and manage natural gas liquids (NGLs) upstream of the metering station, and will control emissions of gas associated with the liquids separation. The gathering pipelines that feed into the Mercury Dehydration station have proven to contain large volumes of condensable NGLs that require management. The liquids will be removed ahead of the Mercury Dehydration Units by installing a new headworks that consists of knockout vessels, pig receivers, pig launcher, 30,000 gallon pressurized NGL Bullet Tank, which operates at 150 psig that manages flash gas and liquids during removal of liquids from the tank. The flash gas and vapors produced by these maintenance operations are currently being routed to a distribution line, however this project proposes to provide the options to control emissions by an enclosed flare. The collected liquids in the pressurized storage tank are currently transported by truck offsite, but will be transported to the MarkWest facility via pipeline for further processing, when that option becomes available.

The Mercury Station will be adding the following equipment:

- Two (2) 210 barrel (bbl) storage tanks from pipeline produced water
- One (1) 30,000 gallon NGL pressurized tank (150 psig)
- Two (2) Fuel gas heaters rates at 0.77 MMBTU/hr
- One (1) Catalytic heater rated at 0.086 MMBTU/hr
- Two (2) Pig Receivers
- One (1) Pig Launcher
- One (1) Enclosed Flare
- Two (2) Electric driven vapor recovery units

The Mercury Dehydration facility will be unchanged downstream of the meter (with the exception of the catalytic heater addition), but a substantial headworks is proposed to manage NGLs and associated flash and vent gas upstream of the metering station.

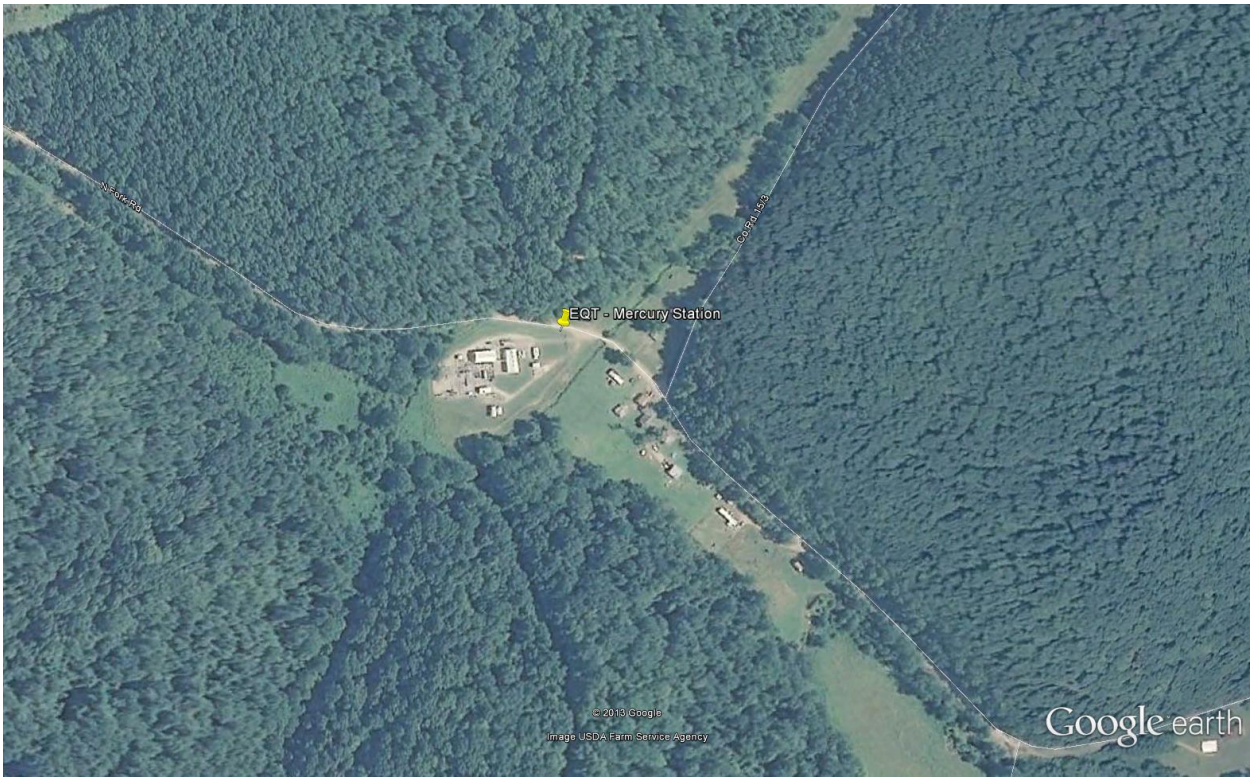
SITE INSPECTION

A site inspection was conducted on June 26, 2013 by Doug Hammell of the DAQ Enforcement Section. According to Mr. Hammell, the site location is appropriate for the proposed facility. The closest residence is approximately 300 feet away.

Latitude: 39.557597
Longitude: -80.549489

Directions as given in the permit application are as follows:

From Charleston: Travel I-79 to Exit 121. Turn left onto County Road 24 for 3.5 miles, slight right on WV Route 20 North for approximately 23 miles. Turn right on Fallen Timber Road and follow for 3 miles and continue on Shuman Hill. Turn left on County Road 15/17 and arrive at station.



ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions associated with this modification application consist of the combustion emissions from two (2) fuel gas heaters, one (1) catalytic heater, two (2) produced fluids tanks, one (1) NGL tank, one (1) storage tank flare, one (1) pipeline flare and fugitive emissions. Fugitive emissions for the facility are based on calculation methodologies presented in EPA Protocol for Equipment Leak Emission Estimates. The following table indicates which methodology was used in the emissions determination:

Emission Unit ID#	**Process Equipment**	**Calculation Methodology**
S5, S6	0.77 MMBTU/hr Fuel Gas Heater	EPA AP-42 Emission Factors
S7	0.086 MMBTU/hr Catalytic Heater	EPA AP-42 Emission Factors
T05, T06	210 bbl (8,820gal) Produced FluidsTanks	EPA Tanks 4.09d and E&P Tanks 2.0 (Flashing)
T07	30,000 gal NGL Tank	EPA Tanks 4.09d and E&P Tanks 2.0 (Flashing)
C3	40 MMBTU/hr Storage Tank Flare	EPA AP-42 Emission Factors
C4	40 MMBTU/hr Pipeline Flare	EPA AP-42 Emission Factors

The following table indicates the control device efficiencies that are required for this facility:

Emission Unit ID#	**Pollutant**	**Control Device**	**Control Efficiency**
Product Tanks (T05, T06, T07)	Volatile Organic Compounds	Flare (C3)	95 %
	Hazardous Air Pollutants		95 %
Pipeline Maintenance Activities	Volatile Organic Compounds	Flare (C4)	95 %
	Hazardous Air Pollutants		95 %

Maximum detailed controlled point source emissions concerning this modification were calculated by EQT and checked for accuracy by the writer and are summarized in the table below:

EQT Gathering LLC – Mercury Station (R13-2919A)

Emission	Source	NO_x		CO		VOC		PM-10/2.5		SO_2		Total HAPs		CO_2e	
Point ID#		lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year
E11	Fuel Gas Heater	0.07	0.32	0.06	0.27	<0.01	0.02	0.01	0.05	<0.01	<0.01	<0.01	<0.01	90	394
E12	Fuel Gas Heater	0.07	0.32	0.06	0.27	<0.01	0.02	0.01	0.05	<0.01	<0.01	<0.01	0.01	90	394
E13	Catalytic Heater	0.01	0.04	0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	10	44
C3	Storage Tank Flare	3.81	16.69	3.20	14.02	NA	2.17	0.29	1.27	0.02	0.10	NA	0.08	4695	20566
C4	Pipeline Flare	3.81	16.69	3.20	14.02	NA	0.05	0.29	1.27	0.02	0.10	NA	0.03	4680	20499
-	Pipeline Pigging Fugitives	0.00	0.00	0.00	0.00	NA	0.15	0.00	0.00	0.00	0.00	NA	<0.01	910	151
FUG	Station Fugitive and Blowdowns	0.00	0.00	0.00	0.00	NA	0.20	0.00	0.00	0.00	0.00	NA	<0.01	NA	2
Total	**Total Facility PTE**	**7.77**	**34.06**	**6.53**	**28.61**	**NA**	**2.61**	**0.60**	**2.64**	**0.01**	**0.02**	**NA**	**0.12**	**10475**	**42050**

The following table indicates the existing potential to emit (PTE) and the emissions increase for the new equipment (tpy):

Pollutant	Current Facility PTE (tpy)	Emissions Increase from New Equipment (tpy)
Carbon Monoxide	11.26	28.61
Nitrogen Oxides	13.40	34.06
Particulate Matter-10	1.35	2.64
Sulfur Dioxide	0.08	0.02
Volatile Organic Compounds	47.69	2.61
Carbon Dioxide Equivalents	17,897	42,050
Total HAPs	8.44	0.12

The total facility PTE for the Mercury Station is shown in the following table:

Pollutant	Facility Wide PTE (tons/year)
Nitrogen Oxides	47.46
Carbon Monoxide	39.87
Volatile Organic Compounds	50.30
Particulate Matter-10	3.99
Sulfur Dioxide	0.10
Total HAPs	8.56
Carbon Dioxide Equivalent	59,947

REGULATORY APPLICABILITY

The following rules apply to the proposed modifications:

45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers)

The purpose of 45CSR2 is to establish emission limitations for smoke and particulate matter which are discharged from fuel burning units. 45CSR2 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 4 (weight emission standard), 5 (control of fugitive particulate matter), 6 (registration), 8 (testing, monitoring, recordkeeping, reporting) and 9 (startups, shutdowns, malfunctions). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of the proposed heaters (S5, S6, S7) are below 10 MMBTU/hr. Therefore, these units are exempt from the aforementioned sections of 45CSR2.

EQT would also be subject to the opacity requirements in 45CSR2, which is 10% opacity based on a six minute block average.

45CSR10 (To Prevent and Control Air Pollution from the Emissions of Sulfur Oxides)

The purpose of 45CSR10 is to establish emission limitations for sulfur dioxide which are discharged from fuel burning units. 45CSR10 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 3 (weight emission standard), 6 (registration), 7 (permits), and 8 (testing, monitoring, recordkeeping, reporting). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of the proposed heaters (S5, S6, S7) are below 10 MMBTU/hr. Therefore, these units are exempt from the aforementioned sections of 45CSR10.

45CSR13 (Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation)

45CSR13 applies to this source due to the fact that EQT exceeds the regulatory emission threshold for criteria pollutants of 6 lb/hr and 10 ton/year, and they are also subject to a substantive requirement of an emission control rule promulgated by the Secretary (45CSR6).

EQT paid the appropriate application fee and published the required legal advertisement for a construction permit application.

45CSR16 (Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60)

45CSR16 applies to this source by reference of 40CFR60 Subpart OOOO. These requirements are discussed under that rule below.

45CSR22 (Air Quality Management Fee Program)

EQT is not subject to 45CSR30. The Mercury Station is subject to 40CFR60 Subpart OOOO, however they are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided they are not required to obtain a permit for a reason other than their status as an area source.

EQT is required to pay the appropriate annual fees and keep their Certificate to Operate current.

40CFR60 Subpart OOOO (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution)

EPA published in the Federal Register new source performance standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. 40CFR60 Subpart OOOO establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO_2) emissions from affected facilities that commence construction, modification or reconstruction after August 23, 2011. The following affected sources which commence construction, modification or reconstruction after August 23, 2011 are subject to the applicable provisions of this subpart:

a. Each gas well affected facility, which is a single natural gas well.

There are no gas wells at this facility. Therefore, all requirements regarding gas well affected facilities under 40 CFR 60 Subpart OOOO would not apply.

b. Each centrifugal compressor affected facility, which is a single centrifugal compressor using wet seals that is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. For the purposes of this subpart, your centrifugal compressor is considered to have commenced construction on the date the compressor is installed (excluding relocation) at the facility. A centrifugal compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

There are no centrifugal compressors at the Mercury Station. Therefore, all requirements regarding centrifugal compressors under 40 CFR 60 Subpart OOOO would not apply.

c. Each reciprocating compressor affected facility, which is a single reciprocating compressor located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. For the purposes of this subpart, your reciprocating compressor is considered to have commenced construction on the date the compressor is installed (excluding relocation) at the facility. A reciprocating compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

There are no reciprocating compressors at the Mercury Station. Therefore, all requirements regarding centrifugal compressors under 40 CFR 60 Subpart OOOO would not apply.

d. Pneumatic Controllers

- Each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh which commenced construction after August 23, 2011, and is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment and not located at a natural gas processing plant.

- Each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller which commenced construction after August 23, 2011, and is located at a natural gas processing plant.

There will be applicable pneumatic controllers at this facility. Therefore, the requirements regarding pneumatic controllers under 40 CFR 60 Subpart OOOO would apply. EQT would be required to perform the following:

- *Each pneumatic controller located between the wellhead and a natural gas processing plant must have a bleed rate less than or equal to 6 standard cubic feet per hour (scfh).*

- *Each pneumatic controller must be tagged with the month and year of installation, reconstruction, or modification, and identification information that allows traceability to the records for that controller.*

- *Submit the appropriate start up notifications.*

- *Submit the applicable annual reports for pneumatic controllers.*

- *Maintain records of the date, location and manufacturer specifications for each pneumatic controller, records of the demonstration that the used of pneumatic controllers with a natural gas bleed rate greater than 6 scfh are required and the reasons why, records of the manufacturer's specifications indicating that the controller is designed such that the natural gas bleed rate is less than or equal to 6 scfh, records of deviations in cases where the pneumatic controllers was not operated in compliance.*

e. Each storage vessel affected facility, which is a single storage vessel, located in the oil and natural gas production segment, natural gas processing segment or natural gas transmission and storage segment.

40CFR60 Subpart OOOO defines a storage vessel as a unit that is constructed primarily of non-earthen materials (such as wood, concrete, steel, fiberglass, or plastic) which provides structural support and is designed to contain an accumulation of liquids or other materials. The following are not considered storage vessels:

- Vessels that are skid-mounted or permanently attached to something that is mobile (such as trucks, railcars, barges or ships), and are intended to be located at a site for less than 180 consecutive days. If the source does not keep or are not able to produce records, as required by §60.5420(c)(5)(iv), showing that the vessel has been located at a site for less than 180 consecutive days, the vessel described herein is considered to be a storage vessel since the original vessel was first located at the site.

- Process vessels such as surge control vessels, bottoms receivers or knockout vessels.

- Pressure vessels designed to operate in excess of 204.9 kilopascals and without emissions to the atmosphere.

This rule requires that the permittee determine the VOC emission rate for each storage vessel affected facility utilizing a generally accepted model or calculation methodology within 30 days of startup, and minimize emissions to the extent practicable during the 30 day period using good engineering practices. For each storage vessel affected facility that emits more than 6 tpy of VOC, the permittee must reduce VOC emissions by 95% or greater within 60 days of startup. The compliance date for applicable storage vessels is October 15, 2013.

The proposed storage vessels (T05, T06, T07) located at the Mercury Station will be controlled by a flare which will reduce the potential to emit to less than 6 tpy of VOC. The produced fluids tanks (T05, T06) are below the emissions thresholds. The NGL tank (T07) is not subject to this rule because pressure vessels are excluded from the definition of a storage vessel in 60.5430. Therefore, EQT is not required by this section to further reduce VOC emissions by 95%.

f. The group of all equipment, except compressors, within a process unit is an affected facility.

- Addition or replacement of equipment for the purpose of process improvement that is accomplished without a capital expenditure shall not by itself be considered a modification under this subpart.

- Equipment associated with a compressor station, dehydration unit, sweetening unit, underground storage vessel, field gas gathering system, or liquefied natural gas unit is covered by §§60.5400, 60.5401, 60.5402, 60.5421 and 60.5422 of this subpart if it is located at an onshore natural gas processing plant. Equipment not located at the onshore natural gas processing plant site is exempt from the provisions of §§60.5400, 60.5401, 60.5402, 60.5421 and 60.5422 of this subpart.

- The equipment within a process unit of an affected facility located at onshore natural gas processing plants and described in paragraph (f) of this section are exempt from this subpart if they are subject to and controlled according to subparts VVa, GGG or GGGa of this part.

The Mercury Station is not a natural gas processing plant. Therefore, Leak Detection and Repair (LDAR) requirements for onshore natural gas processing plants would not apply.

g. Sweetening units located at onshore natural gas processing plants that process natural gas produced from either onshore or offshore wells.

- Each sweetening unit that processes natural gas is an affected facility; and

- Each sweetening unit that processes natural gas followed by a sulfur recovery unit is an affected facility.

- Facilities that have a design capacity less than 2 long tons per day (LT/D) of hydrogen sulfide (H_2S) in the acid gas (expressed as sulfur) are required to comply with recordkeeping and reporting requirements specified in §60.5423(c) but are not required to comply with §§60.5405 through 60.5407 and paragraphs 60.5410(g) and 60.5415(g) of this subpart.

- Sweetening facilities producing acid gas that is completely reinjected into oil-or-gas-bearing geologic strata or that is otherwise not released to the atmosphere are not subject to §§60.5405 through 60.5407, 60.5410(g), 60.5415(g), and 60.5423 of this subpart.

There are no sweetening units at the Mercury Station. Therefore, all requirements regarding sweetening units under 40 CFR 60 Subpart OOOO would not apply.

The following rules do not apply to the facility:

45CSR30 (Requirements for Operating Permits)

EQT is not subject to 45CSR30. The Mercury Station is subject to 40CFR60 Subpart OOOO, however they are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided they are not required to obtain a permit for a reason other than their status as an area source.

40CFR60 Subpart Kb (Standards of Performance for VOC Liquid Storage Vessels)

40CFR60 Subpart Kb applies to storage vessels with a capacity equal to or greater than 75 cubic meters. The NGL storage tank (T07) has a capacity of 30,000 gal (113.55 cubic meters), but is designed to operate at a pressure of 150 psig. Therefore, the NGL storage tank (T07) is exempt from this rule as outlined in 60.110b(d)(2). Furthermore, the NGL storage tank (T07) has a design capacity less than or equal to 1,589.874 cubic meters and is used for condensate stored, processed, or treated prior to custody transfer and is exempt per 60.110b(d)(4).

All other proposed storage vessels are less than 75 cubic meters.

40CFR60 Subpart KKK (Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants)

40CFR60 Subpart KKK applies to onshore natural gas processing plants that commenced construction after January 20, 1984, and on or Before August 23, 2011. The Mercury Station is not a natural gas processing facility, therefore, EQT is not subject to this rule.

45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants)

45CSR19 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment)

The Mercury Station is located in Wetzel County, which is an attainment county for all criteria pollutants, therefore the Mercury Station is not applicable to 45CSR19.

As shown in the table on the following page, EQT is not subject to 45CSR14 or 45CSR19 review.

Pollutant	PSD (45CSR14) Threshold (tpy)	NANSR (45CSR19) Threshold (tpy)	Mercury PTE (tpy)	45CSR14 or 45CSR19 Review Required?
Carbon Monoxide	250	NA	39.87	No
Nitrogen Oxides	250	NA	47.46	No
Sulfur Dioxide	250	NA	0.10	No
Particulate Matter 2.5	250	NA	3.99	No
Ozone (VOC)	250	NA	50.30	No
Greenhouse Gas (CO_2e)	100,000	NA	59,947	No

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

There will be small amounts of various non-criteria regulated pollutants emitted from the combustion of natural gas. However, due to the concentrations emitted, detailed toxicological information is not included in this evaluation.

AIR QUALITY IMPACT ANALYSIS

Modeling was not required of this source due to the fact that the facility is not subject to 45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants) as seen in the table listed in the Regulatory Discussion Section.

SOURCE AGGREGATION

"Building, structure, facility, or installation" is defined as all the pollutant emitting activities which belong to the same industrial grouping, are located on one or more contiguous and adjacent properties, and are under the control of the same person.

The Mercury Station is located in Wetzel County and will be operated by EQT.

1. The Mercury Station will operate under SIC code 1311 (Natural Gas Extraction). There are other natural gas facilities operated by EQT that share the same two-digit major SIC code of 13 for natural gas extraction. Therefore, the Mercury Station does share the same SIC code as other EQT facilities.

2. "Contiguous or Adjacent" determinations are made on a case by case basis. These determinations are proximity based, and it is important to focus on this and whether or not it meets the common sense notion of a plant. The terms "contiguous" or "adjacent" are not defined by USEPA. Contiguous has a dictionary definition of being in actual contact; touching along a boundary or at a point. Adjacent has a dictionary definition of not distant; nearby; having a common endpoint or border.

The Mercury Liquids Handling Facility is located across North Fork Road from the Mercury Dehydration Facility approximately 600 feet away. All gas flowing from the headworks will flow to the Mercury Dehydration Facility, and the dehydration facility is generally dependent on the new liquids handling project to remove liquids for the purposes of operation. Although the operations are able to occur separately and independently on a day to day basis, the functional relationship are a continuous process.

Therefore, the properties in question are not considered to be on contiguous or adjacent property.

3. Common control. All gas flowing from the headworks will flow to the Mercury Dehydration Facility, and the dehydration facility is generally dependent on the new liquids handling project to remove liquids for the purposes of operation. Although the operations are able to occur separately and independently on a day to day basis, the functional relationship are a continuous process.

Because the facilities share the same industrial grouping, are located on contiguous or adjacent properties, and are under common control, the emissions from the Mercury Liquids Handling Facility and the Mercury Dehydration Station should be aggregated in determining major source or PSD status. As a result of this emissions aggregation, the Mercury Station will remain a minor source of air emissions with respect to Title V and PSD permitting.

MONITORING OF OPERATIONS

EQT will be required to perform the following monitoring:

1. Monitor and record quantity of natural gas consumed for all combustion sources.
2. Monitor and record quantity of product throughput (pipeline fluids, NGL).
3. Monitor the presence of the flare pilot flame with a thermocouple or equivalent.
4. Monitor the storage tanks (T05, T06, T07) to ensure that the tanks will have a closed vent system and vapors will be sent to flare.
5. Maintain records of all applicable monitoring for pneumatic controllers for 40CFR60 Subpart OOOO.

EQT will be required to perform the following recordkeeping:

1. Maintain records of the amount of natural gas consumed in the hot oil heater and the flare.
2. Maintain records of the amount of product throughput (pipeline fluids, NGL).
3. Maintain records of the flare design evaluation.
4. Maintain records of the visible emission opacity tests conducted per the permit.
5. Maintain records of testing conducted in accordance with the permit. Said records shall be maintained on-site or in a readily accessible off-site location
6. Maintain the corresponding records specified by the on-going monitoring requirements of and testing requirements of the permit.

7. Maintain a record of all potential to emit (PTE) HAP calculations for the entire facility. These records shall include the natural gas compressor engines and ancillary equipment.
8. Maintain records of all applicable requirements for pneumatic controllers of 40CFR60 Subpart OOOO.
9. The records shall be maintained on site or in a readily available off-site location maintained by Dominion for a period of five (5) years.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that EQT meets all the requirements of applicable regulations. Therefore, impact on the surrounding area should be minimized and it is recommended that the Mercury Station should be granted a 45CSR13 modification permit for their facility.

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Jerry Williams, P.E.
Engineer

_____
Date